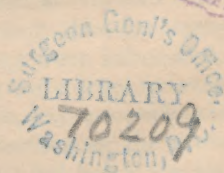


Morton (W. J.)

Hygiene

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AND
TYPHOID FEVER,
DURING THE SUMMER OF 1873.

BY WM. J. MORTON, M.D.



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MOUNT DESERT AND TYPHOID FEVER, DURING THE SUMMER OF 1873.

By WM. J. MORTON, M.D.

THE village of Bar Harbor, situated on one of the many slopes of Mt. Desert Island which stretch from the mountain to the sea, is built along the elevated shore, varying in height above the sea level from ten to fifty feet. The settlement, for very many years consisting of no more than half a dozen houses, has assumed a more notable growth during the last decade, owing to the many visitors attracted thither by the wonderful combination of mountain, sea and island scenery, and it now numbers a dozen hotels and a large collection of smaller houses, the whole accommodating, during the height of the season, from two to three thousand souls. The proprietorship of both hotels and cottages is almost exclusively confined to the native population, whose limited means and contracted ideas have precluded any further realization of the requirements of a civilized township than those primary ones of food and shelter. As a consequence, the primitive means of disposal of the excreta and kitchen washings of a half-dozen cottages are still applied to the crowded summer village.

During the season just passed, the influx of visitors was greater than ever before. The weather was warmer than for many years, and the rainfall was unusually small. Fogs were infrequent.

The evidences of lax sanitary measures were seen on every hand. The necessary outbuildings were, as a rule, not properly cared for; the kitchen drainage either lay upon the surface of the ground near to the houses, or, on the other hand, was led but a few feet to an imperfectly constructed receptacle.

Pig-sties, in several instances, were in evident proximity to eye and nose, and piles of animal and vegetable refuse existed in closely neighboring fields.

These facts, thus far, are not brought forward as a special reproach to Bar Harbor, for, no doubt, many New England towns are in the same condition. There were, however, nuisances of which brief mention should be made in view of their apparent association with subsequent sickness. Of these the most noticeable was an

overflowing cesspool maintained within ten feet of the broad veranda of the Bay View, the largest hotel; and to its proprietor many and frequent remonstrances and protests were directed by his guests and others interested. But such complaints were received with stolidity and indifference, and no practical change was made.

In the same field with the cesspool, and within a hundred feet of either house, the proprietor of the Harbor House, the neighboring hotel, kept a pile of putrefying material collected from his kitchen, from which emanated the most sickening odors.

We leave others to judge of the conduct of this gentleman who persistently refused, in the face of the appeals of many excellent men and women, and also of the selectmen, to remove or discontinue the use of this second nuisance, and who further declared that such smells were healthy, and, to prove that they were, he should and did spread the material to rot upon the field.

Curiously enough, in the spring and early summer, a false report had become very generally circulated in the newspapers that typhoid fever existed at Mt. Desert, and this report, then contradicted, later became a verity.

The first marked typhoidal symptoms appeared among the guests of the Bay View House, on Aug. 5th, when a young lady of their number (case 1), after several days of general malaise and lassitude, took to her bed with severe headache, chills and high fever. On the 6th, another (case 2) was ill in the same manner. On the 10th, a young gentleman (case 3), who had been confined to the house for two weeks, with acute synovitis, became ill with the same symptoms as the two preceding.

Fever was the most obvious symptom, the temperature rising gradually, with morning remissions.

On Aug. 13th, a young lady (case 4), in whom the prodromal symptoms of loss of appetite, general illness and mental disquiet had been evident to many for a period of ten days, was seized with slight chills, and a most violent headache continuing for days and followed by the complete history of abdominal typhoid. About the same time, a fifth case (case 5) occurred, but coming under homoeopathic treatment, we are unable to give its history beyond the facts that it was undoubtedly typhoid, and that it suffered a relapse, from which recovery was for a long time (up to Sept. 20th) doubtful.

Added to these cases, were two among the servants of the house, both sent home, one of whom (case 6), previously in ill-health, died within a week; the other (case 7), we have since learned from Dr. Grindle, of Somesville, made a slow recovery. In a closely adjoining cottage, another servant (case 8) also had the fever, and this was the only case which occurred outside the hotel.

So much sickness in a short space of time and in one hotel had already attracted attention, especially as the conditions of drainage remained unchanged. A consultation with Dr. Calvin Ellis, of Bos-

ton, then temporarily at Bar Harbor, was held, with a view of informing the guests of the probable association of the then prevalent illness with the particular vicinity, but the plan of informing them was, in a degree, forestalled by the question of a solicitous mother, as to whether her other children were as likely to be taken sick as the two then ill, to which there could be but an affirmative answer. The news spread instantly. A panic ensued, and though it was then evening, more than two-thirds of the guests left the house.

Letters from guests who had gone home within the previous two weeks arrived from time to time, containing information of five other cases pronounced typhoid by their respective physicians and of a moderately severe type. These we will refer to as cases 9, 10, 11, 12 and 13. Several other instances of general ill feeling, lassitude and headache, lasting a few days, were undoubtedly owing to the same causes as the preceding.

To summarize briefly. There were, in all, thirteen cases of typhoid fever associated with a residence at the Bay View House. Of these, seven were sick in the house, and five, shortly after or upon reaching home, and one in a cottage within twenty feet of the hotel, at which, it should be mentioned, she took her meals.

Five of these cases might be called normal typhoid, and the remainder abortive, the latter running their course in about two weeks, and not presenting the marked features of the five former.

The diagnosis of typhoid was based upon the characteristic prodromal symptoms, the general increase of temperature, and the existence, in a few cases, of diarrhoea, and in others of evident abdominal tenderness. Rose spots were observed in one case, but in others were not looked for, or, when looked for, not found. All the hotel cases made good recoveries.

The treatment need be only briefly referred to as consisting of an abundance of nourishment, stimulants, cold affusion and aconite, corresponding to high elevations of temperature.

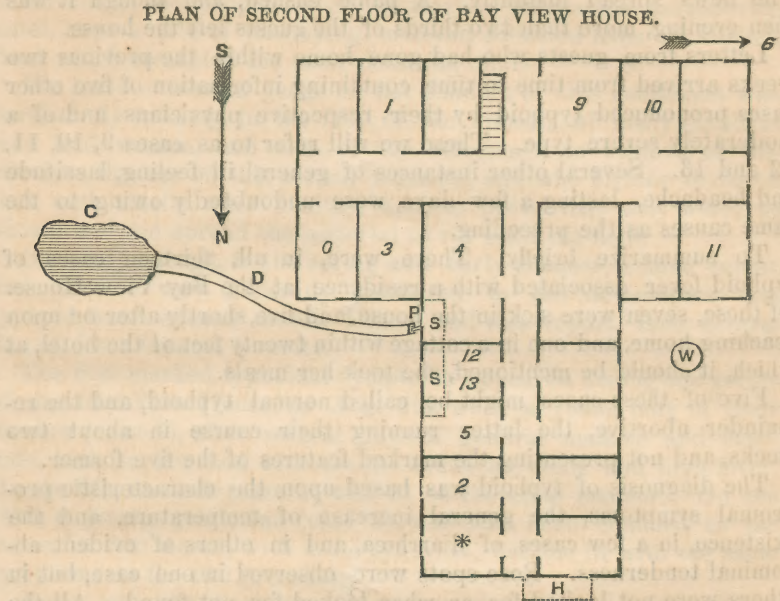
The interesting inquiry into the causes of the outbreak now presents itself.

Of general telluric influences associated with low subsoil water and the decomposition of organic materials, whose subsidence had been prevented by underlying strata of clay or ledge, we cannot speak with much certainty, owing to the absence of necessary data. The soil of Bar Harbor is very generally composed of diluvium or drift, and undoubtedly rests on a continuous ledge. It would seem probable, however, that such influences would lead to a more widely distributed sickness. And, further, where disease is so perfectly localized, a local cause is suggested.

The well and the drain remain as the two obviously salient points. Of the former, we can only say that its water was hard, clear and sparkling, and uncontaminated by surface drainage. Of the presence of nitrates, we are at present unable to speak, since the returns of the analysis are not yet available.

But the position of the cesspool and drain presents a striking association, not only with the general locality of the Bay View House, but also with the part of the house in which sickness was most prevalent.

The diagram which follows makes this relation intelligible at a glance.



S, sink, represented by dotted lines, situated in kitchen on lower floor, where dishes &c., were washed, and water found exit at pipe

P, into

D, covered drain (but open at point P) leading to

C, cesspool, also covered, but imperfectly so, with earth.

W, well.

The figures 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 13 represent the cases which occurred in these rooms respectively. Cases 7, 8, not marked on diagram, were servants, who worked constantly over sink, S, on the floor beneath.

* A case affected for several days only.

O, only room facing into western angle of the house in which a case of illness did not occur.

H, out-houses.

The arrow, at the right, points to cottage, thirty feet distant, in which occurred case 8.

The cesspool already referred to was simply an excavation in the ground about ten feet long by four wide and one foot deep. Over this cavity, boards were placed, and these were covered with the removed earth. It was fifteen feet distant from the hotel, and had been in use for six or seven years. Although the soil was gravelly, it is probable that the whole vicinity of this pool had become saturated and that it no longer had the capacity for absorbing. This in fact became evident, for as early as the second week in July, the foul waters oozed up through the soil-covering and lay

upon the surface, giving out a characteristic drain odor, which was noticeable on that side of the house up to and after the occurrence of fever, three weeks later.

But, if the surface of this pool was odious, its interior must have been vile, and from the interior the most direct communication existed, by means of the covered drain marked D, with the western angle of the house, where the pipe P emptied into its open end.

If, as is believed, the worst germs of disease are propagated under cover, we have here an abundant supply of noxious effluvia, daily and nightly emptied into this angle. In the night, when the air was still, especially in this protected spot, these drain emanations must undoubtedly flow up the sides of the house and enter the windows.

We should expect then to find the inmates of those rooms which open into this retiring angle, the ones affected, and such is found to be the fact, as will be seen by referring to the diagram, of which a few further words of explanation are necessary.

The window of the room occupied by case 4 was directly over the open end of the covered drain. The room itself, owing to its peculiar construction, formed a pocket, in which ventilation was a very remote possibility. The cases occurring in this room and the one next, marked 5, were the most serious.

Two cases, reported ill upon reaching home, had occupied, before leaving, the room designated with the figures 12 and 13. The occupant of the room marked with a star was not seriously ill, and has not been included among the numbered cases. The room marked 0 was occupied by the writer, who early fastened down the window looking into this corner, and used only the end window, which, from its situation, offered opportunities for ventilation not open to windows in the angle. To this fact alone, he attributes his exemption. Cases 7 and 8 worked over the sink, as has been said. Case 1 occurred in the room so marked, the door of which was constantly open into number 3.

It will thus be seen that, in a crowded house, a case of typhoid fever was associated with every room, except one, on the side of the house most exposed to the drain emanations, and this fact seems to prove, as far as human evidence can in the present state of knowledge upon this subject, the direct relation of the fever to filth of this description. At this point we leave the inquiry into causes.

We have, in this instance, repeated at Bar Harbor, an experience common to many growing villages where sanitary precautions have failed to keep pace with increased population. And this experience has left its mark in many directions. The Mt. Desert frequenter, to whom the associations of the island were next to sacred, felt grieved to contemplate the sullied fame of his favorite resort, and was almost tempted to apply the well known couplet,

"Where every prospect pleases,
And only man is vile."

The material prosperity of the place suffered a very considerable detriment in the diminished number of visitors, and this injury did not alone affect the hotel proprietors, who failed to receive a large proportion of their prospective summer's earnings, but also extended to each inhabitant who was deprived of the money equivalent for services which he was prepared to render. It is possible that this appeal to the pocket may accomplish what an appeal to the understanding has long failed to do, viz., inaugurate a system of drainage and disposal of kitchen garbage.

In short, the landlord *must* make radical changes or be anathematized, and his hotel avoided. It is idle for him to delude himself with a hastily planted barrel, running over with slime, and point to it as a properly constructed cesspool; or to discourse with all earnestness upon his superior plan of leading filth to a wide expanse of ground directly back of his house and there sprinkling on earth, thus making the chances of health or illness to a hundred guests, depend upon, in the first place, whether he attends to it at all, and in the second, upon his daily judgment as to the necessary amount of earth and the frequency of its application.

However, we wish to speak kindly of the landlords of Bar Harbor, and we are convinced that, with but one notorious exception, they have erred either from indifference or inappreciation of the needs of the occasion.

And while thus plainly dealing with the obvious causes of sickness, and the relation of landlords and their shortcomings therewith, it must be agreed that the panic among visitors, and the reports which subsequently gained a wide currency, were greatly disproportionate to the actually existing amount of illness.

The fever did not "rage," to quote a frequently applied term, beyond the eight cases already described as occurring at Bar Harbor and the five who returned home; while a majority of them were of a very mild form.

Nor was the place "pestilential," with the exception of the Harbor House nuisance, beyond the pale of the Bay View House where all the typhoid sickness was located. Of other diseases we should state that a dozen cases of scarlet fever, in its mildest form (with two exceptions), or so-called scarlatina, appeared from time to time, attacking both native inhabitants and visitors. Aside from these two diseases, the amount of illness was less than is usual as compared with the number of people.

We are glad to state that measures have already been taken, which it is hoped will end in the introduction of an abundant supply of the purest water from Eagle Lake. The plan also involves the construction of proper drains.

And the sanitary improvements of the next season must be the measure of each proprietor's good intention, and of the impression made upon him by the events of the last.

No 1 Park Square, Boston, Oct. 6, 1873.